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14  
15 **UNITED STATES DISTRICT COURT**  
**NORTHERN DISTRICT OF CALIFORNIA**  
16 **SAN FRANCISCO DIVISION**

17 SANDISK CORPORATION,

18 Plaintiff and  
19 Counterclaim  
Defendant,

20 v.

21 ROUND ROCK RESEARCH LLC,

22 Defendant and  
23 Counterclaim Plaintiff.  
24  
25  
26  
27

Case No. 3:11-cv-05243-RS

**ROUND ROCK'S OPPOSITION TO  
SANDISK'S MOTION FOR  
SUMMARY JUDGMENT ON COUNT  
VII OF ROUND ROCK'S  
COUNTERCLAIMS – ASSERTED  
CLAIMS 1–4 OF U.S. PATENT  
6,383,839 ARE INVALID FOR  
ANTICIPATION**

Date: TBD  
Time: TBD  
Place: Courtroom 3  
Judge: Hon. Richard Seeborg

## INTRODUCTION

SanDisk moves for summary judgment that claims 1–4 of Round Rock’s U.S. Patent No. 6,383,839 (“the ’839 patent”) are anticipated by U.S. Patent No. 4,266,282 (“the ’282 patent”).<sup>1</sup> But the ’282 patent fails to disclose a key inventive aspect of those claims—“fabricating a semiconductor device of *the preexisting design*.”<sup>2</sup> Instead, the ’282 patent is directed to creating *new* semiconductor chip designs with configurations suitable for vertical mounting, not reconfiguring preexisting designs.<sup>3</sup> SanDisk largely ignores this deficiency, and spends much of its brief mischaracterizing the ’839 patent, and claims 1–4 in particular. For example, SanDisk repeatedly contends that the “alleged improvement of the ’839 patent” is arranging connections along one edge of a semiconductor chip and mounting the chip perpendicularly,<sup>4</sup> ignoring the preexisting design limitations. SanDisk’s description of the “alleged improvement of the ’839 patent,” however, cannot withstand scrutiny because the ’839 patent itself acknowledges that those concepts were known:

*Compare SanDisk’s Characterization:*

The Alleged Improvement of the ’839 Patent over Chip-on-Board Mounting Concerned *Arranging Bonding Pads Along One Edge* of a Semiconductor Chip and *Perpendicularly Mounting* the Chip on the Circuit Board (SanDisk Br. at 3.)

*With the ’839 patent’s Background of the Invention:*

U.S. Pat. No. 5,668,409 (the “’409 patent”), issued to Stephen Joseph Gaul on Sep. 16, 1997, discloses a *vertically mountable*, bare

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<sup>1</sup> The ’839 patent is attached to SanDisk’s Motion, Dkt. No. 141, as Exhibit A and the ’282 patent is attached as Exhibit B.

<sup>2</sup> Emphasis added unless otherwise noted.

<sup>3</sup> The parties agreed that the phrase “preexisting design” means “a previous design (as opposed to a new design).” (Transcript of January 16, 2013, *Markman* Hearing at 63:7–11; Dkt. No. 106, Ex. A at 18.)

<sup>4</sup> In the context of the ’839 patent, mounting the chip “perpendicularly” is the same as mounting the chip “vertically”—both refer to installing a chip such that the attachment is only along one edge and the chip stands upright relative to the mounting surface. (*See, e.g.*, ’839 patent at Figs. 1, 3a, 3b.)

semiconductor die which includes *bond pads along the edge* thereof.  
(’839 patent at col. 2:17–20; *see also id.* at col. 1:51–2:5.)

Indeed, the ’282 patent is merely duplicative of the ’409 patent identified by the patentee—it does not disclose the preexisting design limitations. And SanDisk’s description is misleading because claims 1–4 *do not require perpendicular mounting*. SanDisk’s motion largely ignores the actual requirements of claims 1–4, which all require starting with a preexisting semiconductor device design and reconfiguring it through implementation of the claimed method steps, including among other things fabricating electrical traces that extend toward a single edge and forming corresponding bond pads. As discussed below, the ’282 patent fails to disclose this claim element and SanDisk’s motion should therefore be denied.<sup>5</sup>

### LEGAL STANDARDS

Summary judgment is appropriate only where “the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law.” *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986) (quoting Fed. R. Civ. P. 56(c)). A disputed fact presents a genuine issue “if the evidence is such that a reasonable jury could return a verdict for the non-moving party.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). “When ruling on a motion for summary judgment, all of the nonmovant’s evidence is to be credited, and all justifiable inferences are to be drawn in the nonmovant’s favor.” *Caterpillar Inc. v. Deere & Co.*, 224 F.3d 1374, 1379 (Fed. Cir. 2000). “Because patents are presumed valid, a moving party seeking to invalidate a patent at summary judgment must submit such clear and convincing evidence of facts

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<sup>5</sup> SanDisk also failed to address parties’ proposed constructions for the disputed terms of claims 1–4 of the ’839 patent (*see, e.g.*, Dkt. No. 106, Ex. A at 18–20), despite the Federal Circuit’s instruction that “[a] determination that a claim is anticipated involves a two-step analysis: the first step requires construing the claim, and the second step in the analysis requires a comparison of the properly construed claim to the prior art.” *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332 (Fed. Cir. 2010).

underlying invalidity that no reasonable jury could find otherwise.” *TriMed, Inc. v. Stryker Corp.*, 608 F.3d 1333, 1340 (Fed. Cir. 2010) (citations and internal quotations omitted).

### **FACTUAL BACKGROUND**

#### **I. Claims 1–4 Of The ’839 Patent Require Reconfiguring A Preexisting Design**

Claim 1 of the ’839 patent is an independent claim, and claims 2–4 depend from claim 1 and thus include all of its limitations. Claim 1 reads as follows:

1. A method for reconfiguring a connection pattern of a preexisting semiconductor device design, comprising:  
 fabricating a semiconductor device of the preexisting design;  
 fabricating electrical traces that extend toward a single edge of said semiconductor device and communicate with internal circuitry thereof; and  
 forming a plurality of bond pads on said semiconductor device, adjacent a single edge thereof, each bond pad of said plurality of bond pads communicating with a corresponding one of said electrical traces.

(’839 patent at col. 5:57–67.)<sup>6</sup> As claim 1 states in the preamble, it is directed to a method for reconfiguring a connection pattern of a *preexisting semiconductor device design*. The first method step requires fabricating a semiconductor device of the preexisting design. This limitation necessarily requires a semiconductor device of a preexisting design as a starting point. The second and third steps require, among other things, fabricating electrical traces that extend toward a single edge of said semiconductor device and forming bond pads on said semiconductor device. Contrary to SanDisk’s assertions, claim 1 and the corresponding dependent claims are directed to this reconfiguration method. (Aframowitz Decl. at ¶ 9.)

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<sup>6</sup> It is apparent that claim 1 does not require perpendicular mounting. No such limitations appear in the claim. And none of claims 2–4 do either. (’839 patent at col. 6:1–10.) SanDisk’s description of the ’839 patent as directed to perpendicular mounting is thus belied by the plain language of claims 1–4.

1 The specification provides further explanation regarding the advantages of using a  
 2 preexisting design. For example, with respect to the preferred embodiment shown in Figure 2 of the  
 3 '839 patent, the patent explains that the bond pads may be “redirected” so that that “existing  
 4 semiconductor device designs are useful in the package of the present invention”:

5 Referring to FIG. 2, semiconductor device 10 is a semi-  
 6 conductor device of the type known and used in the industry,  
 7 which includes circuit traces and active elements. The bond  
 8 pads 12a, 12b, 12c, etc. of semiconductor device 10 are  
 9 disposed on active surface 11, adjacent to a single edge 16  
 10 of the semiconductor device. Preferably, bond pads 12a,  
 11 12b, 12c, etc. are arranged in-line. Bond pads 12a, 12b, 12c,  
 12 etc. may be disposed a short distance from edge 16, or their  
 13 lower edges may be flush with the edge. Thus, during  
 14 fabrication of semiconductor device 10, bond pads 12a, 12b,  
 15 12c, etc. are redirected to a location which is adjacent to  
 16 edge 16. Methods and mechanisms which are known to  
 17 those of ordinary skill in the art are useful for manufacturing  
 semiconductor devices which are useful in the package  
 according to the present invention. Such methods include  
 the formation of electrical traces which lead to edge 16 and  
 the fabrication of bond pads 12a, 12b, 12c, etc. adjacent to  
 edge 16. Preferably, the fabrication steps which precede the  
 formation of the electrical traces that lead to bond pads 12a,  
 12b, 12c, etc. and the formation of the bond pads are  
 unchanged from their equivalent steps in the fabrication of  
 prior art semiconductor devices. Thus, existing semiconduc-  
 tor device designs are useful in the package of the present  
 invention with little modification and no increase in the  
 number of fabrication.

18 ('839 patent at col. 3:32–56.) Similarly, the '839 patent explains that “fabrication of the device  
 19 requires no additional steps relative to the fabrication of many similar semiconductor devices in the  
 20 prior art.” (*Id.* at col. 5:42–45.) Reconfiguring preexisting designs therefore allows those designs to  
 21 be used for different purposes after minimal changes rather than having to develop brand new  
 22 designs. (Aframowitz Decl. at ¶ 10.)

## 23 II. The '282 Patent Is Directed Toward New Designs, Not Preexisting Designs

24 Unlike the '839 patent, the '282 patent is not directed towards reconfiguring preexisting  
 25 designs, but rather to designing new semiconductor chip designs with configurations suitable for  
 26 vertical mounting. (Aframowitz Decl. at ¶ 12.) The '282 patent does not even mention reconfiguring  
 27 or redesigning a preexisting design. Indeed, the very first sentence of the '282 patent Abstract

1 explains that “[a] semiconductor chip *is so designed* that the signal and power terminals are brought  
 2 to one edge of the integrated circuit chip,” demonstrating that the ’282 patent is focused on new  
 3 designs, not reconfiguring previous designs. The ’282 patent further discusses how semiconductor  
 4 chips can be designed in ways that facilitate vertical mounting. The ’282 patent’s focus on new  
 5 designs is also shown by the example in Figure 2, which is a memory “preferably *laid out* so that the  
 6 longest length of the memory array area is parallel to the one edge that contains the terminal 12.”  
 7 (’282 patent at col. 4:38–41.) Figure 2 therefore discloses a new design *laid out from the beginning*  
 8 in a configuration with the terminals on one side. That requires that a designer have control over the  
 9 layout, which would not necessarily be the case if a preexisting design was reconfigured.  
 10 (Aframowitz Decl. at ¶ 13.) The ’282 patent also notes that “[t]his *memory layout* is advantageous  
 11 because it *reduces the length of connections between the various circuits to the one edge*  
 12 containing the signal and power input and output terminals.” (’282 patent at col. 4:47–52.) This  
 13 passage also refers to a new design, because the designer would not be expected to have control over  
 14 those aspects of the layout in a preexisting design. (Aframowitz Decl. at ¶ 13.) The remainder of the  
 15 ’282 patent is consistent, describing potential issues and considerations for chip design. These issues  
 16 are important to chip designers who have a large measure of control over the design of a chip that  
 17 has not yet been fabricated, but not to reconfiguring a previous design. (Aframowitz Decl. at ¶ 14.)  
 18 The claims are also consistent, requiring either “a vertical semiconductor memory integrated circuit  
 19 chip package” or “a vertical semiconductor memory chip package,” and not reciting any limitations  
 20 concerning reconfiguration.

## 21 ARGUMENT

### 22 **I. SanDisk Mischaracterizes The ’839 Patent And Particularly Claims 1–4**

23 As described above, claims 1–4 of the ’839 patent all require “fabricating a semiconductor  
 24 device of the preexisting design.” (’839 patent claim 1, at col. 5:59–60.) Tellingly, SanDisk spends  
 25 several pages of its brief discussing the ’839 patent but never mentions this aspect of the claims.  
 26 Instead, SanDisk contends that “the ’839 patent is directed to perpendicularly mounted chips” and  
 27 further that “the alleged improvement of the ’839 patent over chip-on-board mounting concerned

1 *arranging bonding pads along one edge* of a semiconductor chip and *perpendicularly mounting* the  
 2 chip on the circuit board.” (SanDisk Br. at 2–5.) But the ’839 patent specifically points out that both  
 3 bonding pads arranged along one edge and perpendicular (or vertical) mounting were concepts  
 4 known in the prior art:

5 U.S. Pat. No. 5,668,409 (the ’409 patent”), issued to  
 6 Stephen Joseph Gaul on Sep. 16, 1997, discloses a **vertically**  
 7 **mountable**, bare semiconductor die which includes **bond**  
 8 **pads along the edge** thereof.

9 (’839 patent at col. 2:17–20; *see also id.* at col. 1:51–2:5.) Given that disclosure, SanDisk’s  
 10 characterization of the ’839 patent cannot be correct.

11 Moreover, SanDisk’s description mischaracterizes claims 1–4 because *those claims do not*  
 12 *require perpendicular mounting*. Rather, claims 1–4 are directed to reconfiguring a connection  
 13 pattern on a preexisting semiconductor device, and say nothing about how the device will eventually  
 14 be mounted. While vertical mounting is an embodiment disclosed in the ’839 patent specification,  
 15 that does not bear on the validity of claims 1–4 because those claims do not require any particular  
 16 mounting configuration, as opposed to claim 5 for example.<sup>7</sup> *See, e.g., Hewlett-Packard Co. v.*  
 17 *Genrad, Inc.*, 897 F. Supp. 1479, 1490 (D. Mass. 1995) (“As in other contexts, it is the claims which  
 18 define the claimed invention for purposes of anticipation.”) (citations omitted).

## 18 **II. The ’282 Patent Does Not Disclose Using A Preexisting Design**

19 The ’282 patent is directed to designing new semiconductor chips with configurations  
 20 suitable for vertical mounting, not reconfiguring preexisting designs. (Aframowitz Decl. at ¶ 12; *see*  
 21 *also discussion supra.*) Accordingly, the ’282 patent fails to disclose the requirement of claims 1–4  
 22 of the ’839 patent of “fabricating a semiconductor device of the preexisting design.” (Aframowitz  
 23  
 24

25 \_\_\_\_\_  
 26 <sup>7</sup> Claim 5 recites “[a] method for securing a semiconductor device *nonparallel relative to a*  
 27 *substrate . . .*” (’839 patent at col. 6:11–12.)



Decl. at ¶ 17.) In its claim chart, SanDisk points to the following passage in the '282 patent as allegedly “disclos[ing] several types of pre-existing semiconductor designs”:

The vertical integrated circuit package may be used for memory, logic, microprocessor, programmable logic arrays and combinations thereof.

(*citing* '282 patent at col. 4:3–5.) But the enumerated uses in that passage are not preexisting designs. Rather, those are merely descriptions of potential uses for an integrated circuit. (Aframowitz Decl. at ¶ 15.) For example, the term “memory” standing alone (which is the full extent of the alleged disclosure of a preexisting design) does not connote any particular design, but rather is merely a high level description of a particular function that could be implemented in a virtually unlimited number of different designs. (Aframowitz Decl. at ¶ 15.) Similarly, if one of ordinary skill in the art were asked to physically reconfigure a “memory,” such a task would not be possible without more information about how the memory was designed and implemented. (Aframowitz Decl. at ¶ 15.) Genuine issues of material fact therefore exist with respect to whether the bare recitation of possible semiconductor uses, such as “memory,” disclose the “preexisting design” limitations of the '839 patent.

SanDisk also contends that the preexisting design is illustrated in figure 2 of the '282 patent. But figure 2 of the '282 patent cannot be a preexisting design because it is designed from scratch to optimize the layout for vertical mounting. (*See* '282 patent at col. 4:38–41, 4:47–52; *see also* Aframowitz Decl. at ¶ 16.) As discussed above in the factual background section, figure 2 of the '282 patent and the accompanying description describe how to design a layout, which necessarily requires that the designer have control over the layout. That would not be the case with a preexisting design. (Aframowitz Decl. at ¶ 16.) This is further supported by the '282 patent's focus on new designs, and the absence of any disclosure of reconfiguring preexisting designs. (*See id.* at Abstract (“A semiconductor chip *is so designed* that the signal and power terminals are brought to one edge of the integrated circuit chip.”).) Accordingly, a reasonable jury could find that the '282 patent does not disclose the preexisting design limitations, either with respect to the enumerated uses (such as



1 “memory”) or the disclosure related to figure 2. (Aframowitz Decl. at ¶¶ 15–17.) SanDisk’s  
 2 summary judgment should therefore be denied. *TriMed*, 608 F.3d at 1340.

### 3 CONCLUSION

4 For the foregoing reasons, Round Rock respectfully requests that this Court deny SanDisk’s  
 5 motion for summary judgment of invalidity of claims 1–4 of U.S. Patent No. 6,383,839.

6  
 7 Dated: April 17, 2013

Respectfully submitted,

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